Jacob Waldburg

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FOR THE PROMOTION

OF

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IN THE

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JANUARY, 1846.

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CONTENTS.

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The Southern Agriculturist.

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For the Southern Agriculturist.

DRAINING OF DITCHES IN RICE FIELDS.

Mr. Editor:—Your correspondent, "An Occasional Reader," in his observations in favor of thoroughly draining the ditches in rice-fields, deserves the grateful and diligent attention of your readers interested in rice-planting. His object is the preservation of health and life on rice-plantations, and no one can estimate this object too highly.

I beg leave to offer an additional argument in favor of keeping the ditches always drained and free from water. When the water is drawn off from rice-fields in preparation for the harvest, it is left in all the ditches and canals, and becomes a fruitful source of exhalation, (malaria) the cause of bilious remittant fevers all over that region of country, particularly among the overseers and industrious planters, whose sickness and death at that most interesting period of the crop, should be most carefully prevented.

Keep the ditches dry, or flow them every day with fresh running water, and you prevent the stagnation of their contents, and the consequent escape of all the noxious vapors which always render this the most dangerous season of the whole year. D.

From the Quarterly Journal of Agriculture and Science.

SOMETHING ABOUT MANURE AND ITS APPLICATION.

BY JESSE RYDER.

Almost all the farmers of this country are obliged to depend on the resources of their own farms for the supply of animal and vegetable manures which they can command. Mineral manures are more generally purchasable; but as stimulants and absorbents, they can only operate in conjunction with the vegetable matter of the soil (the humus or mould,) the principal supply of which to cultivated land, is obtained from our cattle yards, and is returned to the earth again from whence it came.

It seems to be self-evident to me, that the earth must receive something in return for her productions, or become bankrupt. Either a portion of her produce must be left with her, or an equivalent returned, otherwise she becomes barren and unfruitful.

If I recollect right, Liebig says that perhaps five-sixths of the nourishment of plants is derived from the atmosphere, and all chemists I believe admit a greater or less proportion; but one thing is certain that a part of their nourishment is derived from the soil in which they grow, the one-sixth if you please; and that the richer and better the soil, other circumstances being the same, the better the crop. The roots of plants must be abundantly supplied with their specific food, in that state of preparation which admits of its being appropriated by them, or the plants cannot be fully developed.

I, for one, do not believe that chemists ever will be able to show that the remaining one-sixth of their support can also be got from the atmosphere, and that the only use of earth to them would be as a house or home to live in, to keep the plants from travelling about or falling over. If such should ever be the case, production would become too easy to agree with the declaration that "by the sweat of thy face shalt thou eat bread"

It behoves us then to increase the fertility of the soil we cultivate, until it is capable of affording to plants all the nourishment they require of it, in order to develope them fully.

There is great encouragement in the thought that plants derive a part of their food and nourishment from the atmosphere. If it was all derived from the earth, then would it require all the produce of the farm to be restored to it, in order to preserve its fertility.—Neither could we afford to lose anything by the washings of rains, or by solar evaporation, unless there is some natural operation going on, to create soil upon the earth's surface, independent of aid from the atmosphere. Neither could we enrich our soil from its own resources; that is, by returning to it all its produce as manure, without extraneous aid of some kind. But experimental proofs are not wanting to show that a large part of the food of plants *is derived from the atmosphere.*

It must be within the knowledge of almost all good farmers, that their farms have become more and more productive by restoring to them only a part of the produce of the same in the form of manure, aided by judicious management in its application, and a proper rotation of crops. Now a very important question arises, and it is this: Ought we not to increase the fertility of our farms very fast, when it is considered that the larger part of the nutriment of plants is derived from the atmosphere? That for every pound of food they use of our furnishing, they restore to us three, four, or five pounds more derived from another source, would call for an affirmative answer. As it is well determined that our gain is great, it remains for us to discover the cause of loss, and the preventive too, for lose we certainly must, else: for every load of manure we feed to plants, we ought at the period of its exhaustion to have six times as much

on hand, provided the produce is all made use of on the farm, and five-sixths is the amount gained.

I am satisfied that a great deal more than half the support of plants is derived from some other source than the product of decayed vegetable matter in the soil itself, from the fact that grain farms are often made to improve rapidly, from the resources of the farm which are left after selling off the grain, which is the most valuable portion for manure, and after losing a great part of the strength of the manure which is made on the farm by the escape of its gases and salts, for the want, in part, of some substances to combine and retain them for the use of plants.

Again, meadow land can be cropped, and not manured save and except with plaster, and the soil improve meantime (and I even think the same result may be experienced without the use of plaster, but in a less degree of rapidity,) as I have shown in a former article. I know that such has been the result where plaster was used. In an improvement of a soil almost destitute of mould, in this way, admitting that it is to be attributed to the use of plaster, there is a great increase of mould, which I suppose is principally carbon; but the plaster did not contain carbon. It must operate then by promoting the growth of vegetation that does, which must derive it from the atmosphere; and the operation of the plaster must be by its sulphuric acid combining the ammonia of the atmosphere. I am aware that Dr. Dana attributed its good effects to another cause, viz: the sulphuric acid of the plaster dissolving the silex or gritty matter of the soil, and thus setting free the alkalies contained therein; which in turn dissolve more silex, and thus set free another portion of alkali, and so on. But, in my view, the great effects produced from the use of a little plaster must be attributed to another cause. I should think the growing crop would naturally appropriate to itself the alkalies, so as to prevent in a great measure the action and reaction spoken of.

If this theory be correct, then ought plaster to operate as beneficially in the vicinity of the sea as elsewhere. The effect produced by the lime of the plaster must necessarily be small; a bushel or two to the acre would not avail much, where forty is not enough.

I adopt Liebig's theory of the action of plaster as being most natural, which is, that it fixes the ammonia which is brought down by rain. I suppose it to be in perfect accordance with the law of chemical affinity, if the sulphuric acid of the plaster has a greater affinity for ammonia than it has for lime.

As a practical proof of the correctness of Liebig's theory, I would state that I have, in experimenting with plaster, applied it to a field of corn, except a spot of three rods square. by first rolling the seed in plaster, and then applying it to the hill after it came up; the result was, a difference so great in the growth and yield, as to convince me, knowing the capabilities of the soil, that the non-plastered portion of the corn was a great deal poorer than it would have been had there been no plaster applied to any of the adjacent parts of the

field; consequently the non-plastered portion had been robbed by the plaster of the surrounding corn, of some substance derived from the atmosphere. Hence the usual mode of testing the effects of plaster by comparing parts adjacent, is not fair; the apparent effect being greater than the real. I am sustained in this opinion by a very intelligent farmer of my acquaintance, who came to the same conclusion for himself.

May it not be true, that those farmers who do not use plaster are a little worse off than if their neighbors did not use it. I was told by a farmer who lives near Long Island Sound, that they esteem plaster of very little use, unless it is sowed in the summer, immediately after a shower from the westward.

Liebig says that ammonia is brought down by rainwater, and that in the summer time, when rains are less frequent, a greater portion is brought down at one time. Is the air from the land better charged with ammonia than that from the sea? Does the sea-water absorb it?

When once it is conceded that the soil of a farm can be made to grow rich by the use of manure, made from a great deal less than its own produce, it must also be conceded that the same farm ought to be enriched faster and faster as the amount of its productions increase; and if the majority of farmers barely maintain their soil in a given state of fertility by present management, it follows that any increased effect obtained from a given source of fertility already in common use, must result in a general improvement of the soil, and advance the wealth and prosperity of the country. That such a result would be developed very rapidly, could the manure we make on our farms be made to produce double the effect which it now does, no one can doubt.

I do not believe that the manure which is applied to hoed crops in this country, reproduces itself to the farmer, as a general thing, notwithstanding its auxiliary help from the atmosphere. This is a serious consideration, if we believe that by securing all its valuable properties, it ought to be instrumental in producing five or six times as much. Take a field and apply to it for Indian corn the amount of manure made from its own produce for five preceding years, then raise three grain crops in succession, say corn, oats and wheat or rye; and at the end of that time I am well assured, that the soil will have lost more strength than was imparted to it by the manure of five years. Let it then be laid down to grass for two years, and at the end of that time it will have recovered the elements of fertility, so as to be, generally speaking, about as good as it was before the manure was applied five years previous; the formation of sod being a rejuvenating process.

To be more particular, I should say that the soil of land which is dry and good for grain, would be somewhat improved at the end of the five years, if the grass seed took well; and heavy clayey soils, which are decidedly uncertain for grain without manure, will be decidedly poorer. I consider the grass crop to be a mending crop,

and ever and anon tributary to the grain crop. Meadow land sustaining itself by the vegetable matter of decayed roots, would go to show that the crop derived but a small part of its support from the vegetable matter of the soil.

With hoed crops it appears to me that the roots are not numerous enough, and the leaves too few to appropriate and secure any great proportion of the virtues of the manure, which otherwise leach away or evaporate.

I ouce buried by the plough, in the spring of the year, about sixty ox cart-loads of manure on four acres of sod ground, ploughed the usual depth, five or six inches, soil stiff and heavy; and for aught I have ever seen of its effects, there might as well have been a funeral ceremony at the time of the burying. The season was somewhat wet. What became of the salts of the manure? Planted with potatoes which were poor, then sowed with rye which was poor, and the grass which followed was not as good as it grew before the ploughing. Ploughing in manure on dry land may do better; but I doubt whether one-fourth is ever realized from it that ought to be, if plants derive any considerable part of their support from the atmosphere. I once put about five bushels of strong horse manure in one heap on a timothy meadow, and spread the surrounding parts with like manure, ten two-horse loads to the acre. The manure heap made the grass but little heavier on its borders than it was elsewhere, the ten loads to the acre having brought the land near to its maximum of production (three and a half tons to the acre.) Three years after, the grass was little or no heavier where the manure heap was, than on the parts adjacent. Nineteen twentieths of the manure, then, was lost; which is proof positive to my mind, that it is necessary to secure its valuable properties very soon, or they are lost.

Here the farmer requries chemical aid; and great would be the obligations of the people to that man who could discover, and would make known some cheap and practical way of combining and securing for the use of plants, the fertilizing properties of manure. A free use of plaster would, no doubt, effect much by taking up the ammonia as it formed: if so, it ought to be sprinkled over the yards frequently, and mixed with the manure heap; and then when it was applied to the land, would it not leach away into the earth the same as any other salts?

In a practical way, and without asking the chemists any thing about it, I think farmers may double the value of their manure by taking my advice in its applibation, where the supply is limited. I presume the supply on most farms does not equal one load per acre yearly, for the land in grass and grain; that of the land ploughed, only a portion of it gets a sprinkling in a round of crops; and that if the corn ground is covered, there is none left for wheat. I know that most theoretical and many practical farmers recommend the application of all the manure of the farm to the hoed crops; and thus wear it out, as I think, without securing such a return from it as will leave the land better than it found it.

Our primitive soil is generally rather poor and difficult, and soon reduced by bad management. In many cases, if we do not enrich and improve it, we had best forsake it and go to better land. That system which enriches poor land in the least time, must be good for rich land too. That which enables a poor man to grow rich, must enable the rich man to grow richer.

Experience has taught us here, that to enrich our land, we must apply the manure for our plough land at the time of sowing winter grain, spread it on the furrow, and harrow it in with the grain, which leaves it just where we want it, near the surface; or harrow the ground first, then spread the manure, and plough in the manure and grain together with light furrows.

Now here is the difference between the two systems: If we put all the manure on for corn, on land rather poor and easily worked down, the result is pretty good corn and oats, and poor winter grain and grass succeeding, there being no manure to spare for those crops. When the sod is again turned over for corn, it being poor, the corn again requires barn-yard manure; and thus the land is kept poor, the grass being light, and the manure not increasing in quantity. But let the disposition of the manure be changed: apply it to the winter grain, and then we have good wheat or rye succeeded by good grass, plenty of fodder, an increased quantity of manure, and a sod formed, which, when the land is again ploughed for corn, will enable it to grow as luxuriantly as it did under previous management with the manure applied directly to it. The manure is now left for the winter grain again: there is more of it, and the land grows better very fast.

Suppose the corn on the good sod, as good as it would have been on the poor sod with the manure, what then? Why it was more cheaply fed: there was no volatile salts to escape; none to leach away, that I know of. The difference is like fattening cattle on wheat, instead of Indian corn or roots; only the one is a loss direct, the other a loss entailed; one like paying direct taxes which we know, the other like indirect taxes which we feel and do not know exactly what the matter is.

With the manure for winter grain, it prevents it from freezing out in the winter and spring; also saves the young timothy, and in many instances lightens the soil so as to preserve the clover roots of the year following. Grass being a mending crop, the land can spare its luxuriant burthen and not be poorer, and the land is improved by the amount of the manure, a luxuriant sod being as it were its representative.

Such, in my view, is a practical way of increasing the effects of manure, and securing for the earth a store of vegetable food derived from the atmosphere.

A certain cure for Diarrhœa (says the N. Y. Mechanic,) is found in rice water. Boil the rice, take the water, make it palatable with salt, and drink it copiously while warm. We never knew this simple thing to fail.

AN ESSAY ON GUANO.

BY J. E. TESCHEMACHER, OF BOSTON, MASS.

We acknowledge the receipt of a pamphlet, from the publisher, with the above title. We have paid some attention to the perusal of it, and, generally, approve the theory in respect to guano, as maintained by the Professor. Doubtless that part especially which relates to the comparative value of the Guanoes from the different regions, will be valuable to future purchasers of this powerful chemical composition; to the Peruvian, or Albatross guano, he gives preference.

The spirit of the preface accords so exactly with our own veiws, that praise would absolutely amount to egotism.

If the accounts which estimate the quantity of Guano (or Huano) at 50,000 tons, be true, it will probably last at least a quarter of a century longer, by which time other deposites will no doubt be discovered and formed; so that we do not despair of a supply for some time to come.

What strikes us as *new*, is that the flavor of vegetables is said to be much improved, when the soil in which they grew has been manured with guano.

Although some of the experiments made during the past year have not been altogether successful, owing probably to the extreme drought of the past season, combined with a want of the proper knowledge in its application, this should by no means be the cause of its being stigmatized with our favorite national epithet, *humbug*, but on the contrary, should induce a continuation and care in experiments, on a small scale, by every practical agriculturist—as it is only by perseverance and observation that we can detect imposture as well as assert truth.

One fact with regard to potatoes, we may be permitted to state: —the ground was good when the crop was planted; on a gradual slope, and manured *in the rows* with long stable manure, except the eighth row from the uppermost, which was planted without manure, and when about two inches above the surface, the shoots were manured with Peruvian guano, at the rate of 300 lbs. per acre; the produce was at least half as much more than the next rows to it, manured as we have stated. We have heard of its very extraordinary effect on the growth of Buckwheat, on poor land, in our vicinity; and of its great value in other products, as tested by the farmers of Maryland. The best test, however, of its efficacy, is to be found in the fact, that in the sales of the second cargo of the "Orpheus," the larger number of purchasers are of those who had obtained a portion of the first, as we are informed by the Agent. [*Am. Farmer.*

—

SINGULAR ACTION OF GUANO.

"The most singular and apparently mysterious case of the action of guano, occurred on the farm of John L. Tucker, Esq., of the

Tremont House. He had a piece of grass land which was overrun with sorrel. Thinking guano might destroy it, he mixed a quantity with dry loam, and spread it, last spring, over the field as a top-dressing. The result was, a most luxuriant crop of grass, without a particle of sorrel. This can be well understood; for a farmer has only to manure highly, and the grass will soon choke off the sorrel, which only grows on poor soils.

Having emptied his bags of guano, after beating them well, they were laid down on a piece of pine barren, which, as is well known, is merely a dry crust of moss and lichens, with here and there a few diminutive strings of poor sorrel creeping through. On removing these bags early in September, what was Mr. Tucker's astonishment at finding a thick, tangled mass of the most luxuriant sorrel, such as is in great request with him, for the elegant French cookery of his house! I have now before me a single turf, which he kindly sent me, two and a half feet long, one foot wide, one-half of which is pine barren, the other half this beautiful sorrel.

This was a sore puzzle, that, in one case, as he thought, the guano should kill the sorrel, and in the other make it grow luxuriantly. I have already accounted for the first action of guano; and the second is equally simple. On the pine barren, there was no grass, or any other vegetation, except the thick matting of moss and lichens, and the small strings of sorrel. Moss and lichens, when decomposed, form a good soil, and this decomposition is quickly effected by the salts in guano. These are well known facts. Here, then, is a bed of soil ready for vegetation. Sorrel is a plant containing a large quantity of *oxalic acid;* and two of the ingredients in guano are oxalate of ammonia and oxalate of lime. We have, then, a bed of soil, ammonia, lime, potash, soda, and *oxalic acid*—every thing requisite to make sorrel grow, and no grass to choke it off by rank luxuriance. These circumstances are surely sufficient to account for the growth in question, and to reconcile the seeming contradiction.

Teschemacher's Essay on Guano.

TO ANALYZE SOILS.

1st. Take a small quantity of earth from different parts of the field, the soil of which you wish to ascertain, mix them well together and weigh them; put them in an oven heated for baking bread, and after they are dried, weigh them again; the difference will show the absorbent power of the earth. When the loss of weight in 400 grains amounts to 50, this power is great, and indicates the presence of much animal or vegetable matter; but when it does not exceed 20, the absorbent power is small, and the vegetable matter deficient.

2nd. Put the dried mass into a vase, with one fourth of its own weight of clean water; mix them well together; pour off the dirty water into a second vase, and pour on as much clear water as before;

stir the contents and continue this process until the water poured off is as clear as that poured on the earth. What remains, in the first employed vase after these washings is sand, silicious or calcareous.

3rd. The dirty water, collected in the second vase, will form a deposit, which after pouring off the water, must be dried, weighed and *calcined*, that is, reduced to a powder.

On weighing it after the process, the quantity lost will show the quantity of *animal and vegetable mould* contained in the soil.

4th. This calcined matter must then be carefully pulverized and weighed, as also the first deposit of sand, but without mixing them. To these, apply separately, sulphuric acid, and what they (the earths and acids together) lose in weight, indicates the portion of *calcareous* earth contained in the first vase after deducting the lime, is silex; that in the other, alumina. Carbonate of lime, termed calcareous earth, is composed of 55 parts of lime, and 46 parts of carbonic acid; this acid is displaced, and driven off by the muriatic acid, in consequence of its stronger affinities for the vase. Hence if the earths and acid weigh 45 grains less after the mixture than before, supposing the quantity experimented upon to be 400 grains, it shows that 45 grains of carbonic acid have been driven off, and that the soil contains 25 per cent. of calcareous earth, or one-fourth. The proportion of this earth in good soils, varies from 10 to 30 per cent. [*Am. Farmer*

ON ROTATION OF CROPS.

Having been directly engaged in farming for nearly fifteen years, giving my personal attention, and often asssisting in all the details; I can with some experience recommend to my brethren the four field rotation as suited to a southern culture. This rotation is cotton, corn, grain, and rest, in the order named—that is, cotton on the land that was at rest, corn follow, then grain, then rest.

I go farther than the mere rotation, thinking the good only half effected,—I would therefore advise the cotton fields should be sown down about the first of September in rye and turnips, one bushel of the first, and a pint or even a half pint of the last per acre: when hands walk through to gather cotton, they will cover or press the seed into the earth if rains do not sufficiently, to secure a stand. This will give excellent grazing for sheep and cattle after gathering, until time to plough for corn.

On corn fields, I would say, sow a peck, or if possible a half bushel of cow-peas between corn rows, just before the last ploughing, in May or June; and after the corn is gathered, say in September or October, sow one bushel of rye per acre. In this latitude, in ordinary seasons, the pea vine will have covered the earth before the first of August, this will give one of the richest pastures known

to our country for all kinds of stock; and whilst the pasture is being eaten out, there will be peas enough trodden into the earth to make a tolerable fair stand in the succeeding grain crop—no fear about the rye, it will assuredly be provided for—all that is required is to sow it down.

On the grain crop, when oats are required, plough up the rye in February or early in March, and sow down 1½ to 2½ bushels of oats, with a peck to a half bushel of peas,—the latter will come up about the time of the oats, but will not grow more than a few inches high, until the grain is cut off, when they will soon cover the land—or in the rye left standing open, cut rows six to eight feet apart, with a bull-tongue plough in March, and drill peas—cover with another furrow. Many peas will lie in the ground all winter, and come up in the spring. I have had a piece of land covered in many patches entirely, where oats had followed corn.

The year of rest, will show a tolerable good stand of peas on good land, and of course will aid in covering the land, which will be ensured by the cotton and corn-stalks, pea-vine, stubble and grass allowed to rot in the earth.

I could not myself avoid pasturing all the fields to some extent, and believe if the land is good enough to produce 20 bushels of corn, and 800 lbs. of cotton, that pasturing the land to a moderate extent will not prevent a permanent improvement; and from my experience, though I have never rested but one field, and it not in cotton since, I feel that facts would bear me out in saying, that in three years the crops would be increased to 30 bushels of corn, and 1200 lbs. of cotton.

I have not said anything of manures, which by this mode of work would be trebled easily, it being almost a branch of business of itself; I would only say, use it on cotton, for the corn and grain will not be important, there not being much made, and so much pasturing would require even less.

There are many who object to this rotation, because it requires so much open land; this is more apparent than real, for the diminution of the cotton crop is not as great as appears from the diminution of land, there being a better cultivation, as well as much time to add to the returns by manuring, besides which there is a vast increase of food which will render the work animals more effective, as also longer lived, and also render stock more profitable. I propose though, to decrease the number of laborers by disposal, or the employment of a portion in cleaning, providing manure, draining and improving generally. If by manuring, the cotton crop can be increased in amount, which Dr. Cloud has proved, as also many others, then will a given number of acres employ more hands in gathering the crop than in cultivating it—add to which, the clearing, and you will see that in a very short time the whole force will be brought into active and really profitable use; by adding the hands employed at clearing or in gathering, there would be much more time to clear and manure between crops.

I have dwelt too long on this subject, and yet have not dwelt on it as long as its importance might warrant, for I sincerely believe, that by some species of rotation, the cow-pea, rye, and turnips, that we can improve our land, and increase our crops at one and the same time. I would not give rest at all, (if the labor of the farm could manage so much cleared land every year,) but would follow grain with cow-peas, at the rate of three or four pecks per acre sown broadcast and ploughed in, in the month of May. The effects of cow-peas can be shown here—can be shown wherever the pea has been sown thick enough, and any attention paid to relative product of the land.—Would my brethren only consent to use a half bushel of cow-peas on all corn land, and a half to three-quarters of a bushel of rye only, on every cultivated acre, and change land yearly, I do most confidently believe that in ten years, ordinary land would become good, and good land would produce with the choicest.

M. W. PHILIPS, *of Mississippi.*

[*Am. Farmer.*

GRASSES FOR THE SOUTH.

Your correspondents frequently inquire respecting the grasses suitable for the South. If each would communicate what he had observed it would be a sufficient answer to such inquires, and might prove the most important benefit to the agriculture of the South. During this winter I have seen bundles of *Northern hay* brought to the stables of my neighbor, which had paid for carriage many hundred miles round the capes of Florida, through the Gulf of Mexico, and five hundred miles (by the course of the river) into the interior. This is a *standing reproach* to the agriculture of the South.

Lucerne.—This is found to grow well here. Sow it in drills in the early part of the fall, 24 to 27 inches apart; it flourishes, yields four to five cuttings in the course of the year; and on soil which would bring twenty bushels of corn to the acre, grows a foot and a half high. This season, some was cut on the 12th of March for soiling, and was then from a foot to knee high. The most of it has been cut twice over since the first cutting, to this day, May 13th. Cattle and horses eat it greedily; a cow fed on it chiefly is yielding at this time between five and six gallons of milk daily; when as yet there is no grass in the woods or on the common sufficient to change the poverty-stricken appearance of the cattle in "the range." I have made no hay from it, but have no doubt it will make good hay.

Guinea Grass.—The root is similar to that of the cane or reed, and is perennial. The stem and blade are like those of the Egyptian Millet. On rich soil it is very luxuriant, yielding many cuttings in the course of the year. It is good for soiling—horses and cattle

eat it readily, and if cut when in flower, it makes a hay most abundantly which cattle eat greedily in winter. Horses do not seem to like the hay. It is most readily propagated by the root. A small root two inches long, with one or more joints to it, will vegetate, and, if the ground is made loose by ploughing once or twice during the season after planting, roots placed in checks of four feet will take *complete possession of the soil the first season;* so that the next spring it will start up evenly over the soil anywhere. Hogs root after them with great eagerness, and as the tendency of this plant is to fill the ground with roots in so thick a mat that the grass does not grow tall in consequence, the idea suggests itself of pasturing cattle on this grass in the spring and summer, and giving the hogs the benefit of the roots in the winter. They cannot destroy it; the smallest fibre left in the ground will grow. It might be a great pest in a garden; but if land is to be used for stock, it will take and maintain entire possession to the exclusion of any competitor which we have in middle Alabama.

Clover and Herd's Grass.—I have now a beautiful lot of these grasses in conjunction on high land, the whole about knee high, and the clover in flower. Mr. Kirby, one of my neighbors, cut the wood from a piece of low, pipe-clay, crawfish land, last winter, and when the brush, &c., lying on the ground, had become sufficiently dry, he set fire to it and burnt it all off, thus giving it a top-dressing of ashes. He then sowed herd's grass on the top of the ground, without plough, harrow or anything of the kind. He now has a most rich and beautiful crop of this grass growing.

Leersia Orizoides, (rice grass.)—This plant so much resembles *rice* that only a practised eye can distinguish them. The negroes on the rice plantations in Carolina call it "*the rice's cousin.*" It will grow wherever rice will—*in the water* or in any damp situation. It is found wild in all the Southern country; grows tall, seeds in a panacle not unlike a head of oats, and will yield two crops a year of *choice hay*. Roots perennial. B. M.

Tuskaloosa, Ala., May 13th, 1845. *Albany Cultivator.*

OLD MANURES AND NEW DRESSINGS.

The result of many experiments on artificial manures for the cultivation of flowers is now before me, and the conclusion at which I arrive, so far as actual experience goes, is, that there is nothing that will, as yet, beat cow-dung well rotted, horse dung well rotted, and leaves of trees well rotted, as dressings; and nothing to beat the top spit of a meadow, where the loam is good, as a soil. Peat mould to lighten it when required, and sand to promote drainage, are not intended to yield nourishment, but to temper the compost and regulate its texture. Guano is treacherous and uncertain. I am sure the excrement of some birds which congregate in great

numbers, and furnish a large portion of this, now, article of merchandize, is very different in strength to that of others; and the greatest uncertainty prevails as to the quality, unless it be analyzed. The best that I can find of various flowers, *cultivated under the scores of new systems* does not come up to the standard of the old growers, who were content with cow-dung, leaf mould, and the remains of the dung from an old melon frame. I strongly recommend anybody who is trying to grow flowers for exhibition, to venture upon nothing stronger until they have tried several times on worthless plants, which would be no object. *Horticultural Magazine.*

From Ellsworth's Report of 1845.

COTTON SEED OIL.

The following account of cotton-seed oil, &c., from J. Hamilton Cooper, Esq., of Georgia, will be read with interest, as it shows the use which may yet be made of an article produced in large quantities, and before comparatively useless. A gentleman at the North is already making inquiries on this subject, which may lead to his embarking in this enterprise. It is not improbable, therefore, that cotton-planters may rejoice to find an article of so little value hitherto may be converted into an important article of domestic and foreign use. It was received too late for reference in the report.

The seed of the *Sea-Island* or *long staple* cotton weighs about 40 lbs. to the bushel. As it is less coated with fibre, the yield of oil to the bushel will be considerably greater than that of the upland; but I am unable to say what it is. As the two kinds are only varieties of the same plant, it is presumed that there is no difference in the oil from the two.

Practically considered, the Sea-Island cotton seed may be put out of the question, from its limited production, and the value set on it by planters as a manure.

From the experiments made on a large scale at Natchez, the oil from upland cotton-seed was found, when well refined, to burn as well as spermaceti; it made also an excellent paint oil. There was however, much difficulty in refining it, and so much waste in accomplishing it as to render the manufacture unprofitable. The processes employed were such as were then used in the Netherlands, France, and in America; but none of them was satisfactory. There is every reason to expect that the great improvements and discoveries now making in organic chemistry will soon supply a satisfactory process of refinement.

As there are 30 bushels of seed to every bale of cotton, each bale will yield at least 15 gallons of crude oil, and 360 lbs. of oil cake. If the oil can be made to be worth 50 cents per gallon, and the cake be sold only for 1 cent, an increase of $10 at least per bale will be given, which in 2,000,000 of bales will be $20,000,000.

Through the greater part of the Western country, the seed is absolutely thrown away, as the lands are too rich to be manured. The oil cake from cotton-seed has been extensively used by me as feed for horses, cattle and sheep, and was found to be excellent. It may be used with equal advantage with *rape-cake* for food or manure.

Upland or Sea-Island cotton seed may be obtained from any of the factors in Charleston or Savannah.

No difficulty exists in hulling, tempering, or expressing the oil. The huller of *Follet & Smith*, of Petersburg, Virginia, accomplishes the first very effectually, at the rate of a bushel of kernel in four or five minutes; and the machinery employed in French Flanders for rape seed, &c., answers perfectly for cotton seed.

The present low prices of cotton will present a sufficient inducement to planters to save and sell the seed at reasonable prices; and it is believed that, if a cheap and effective mode of refining the oil can be discovered, this branch of manufacture will become one of very high value to the country. J. HAMILTON COOPER.

Near Darien, Ga.

Memoranda of experiments made in January, 1836, at Natchez, to ascertain the relative quanities of crude oil, cake, &c., from the seed of the short staple or upland cotton.

A.—200 grains (by weight) of seed of good quality, well dried in the sun, opened by hand, and the kernels carefully separated from the hulls and fibre, gave of

Kernels, - - -	115½ grains, being	57¾ per cent.
Hulls and fibre, -	84½ " "	42¼ "
	200	100

B.—The same seed, after being well sun-dried, were heated on a shovel over the fire, until they became crisp. They lost 2½ per cent. in weight.

C.—One bushel (even measure) of seed, heated during eight minutes in a drying kiln, was hulled by Follet's huller, and gave

Kernels, - - - -	14½ lbs., or	54¼ per cent.
Hulls and fibre, - -	12¼ "	45¾ "
	26¾ lbs. weight of 1 bushel of	

seed, *even* or *struck* measure.

D.—One bushel, (heaped measure) kiln dried, gave

Kernels, - - - -	16¼ lbs., or	54.17 per cent.
Hulls and fibre, - -	13¾ "	45.83 "
	30 lbs. weight of one bushel of	

seed, heaped measure.

E.—Ten bushels of kiln dried seed slightly heaped, weighed - - - - - - - - - - 301 lbs.
When hulled, they yielded 9½ bushels of hulls, &c., weighing - - - - - - - - - 117 "
And 5 bushels of kernels weighing - - - - 184 "
Which 5 bushels of kernels when kneaded into a paste under the stones, with 2 quarts of water, gave 3 bushels, 18 quarts of tempered *meal*, which weighed, - - - - - - - - - - 198 "
or 58⅓ lbs. per bushel.
F.—The average weight of a bushel of tempered meal is 61 "
Deduct for water - - - - - - - - 3 "

Leaves the weight of the kernel - - - 58

G.—One gallon of crude oil from the press weighed 7 lbs. 6 oz.
H.—One bushel of well tempered meal, weighing 61 lbs., was pressed, and the cake retempered and repressed: it gave
1st pressing - - - - - 6½ quarts of crude oil.
2nd pressing - - - - - 2⅔ " "

9 1/10 " "

Weight of the bushel of meal - - - - - 61 lbs.
Weight of 9 1/10 quarts, at 7 lbs. 6 oz. per gallon, (G) 16¾ "

Leaves for weight of the *cake*, - - - - - 44¼ "

RESULTS.—*One bushel of seed* weighing 30 lbs. gives 16 lbs. of kernel, which, when tempered and twice pressed, yields from 2¼ quarts to 2 7-10ths quarts of *crude oil*, and 12½ lbs. of *cake*.

LIQUID MANURE TO IMPROVE CORN.

[*From Ellsworth's Report.*

The best mode I have ever tried to improve corn, is to gather your liquid manure by sinking hogsheads, or something like tanner's vats, in or near your barn-yard, so that you can conduct the water into them. Place a large cask or hogshead on two wheels; fill your cask or hogshead, and, with a pair of horses or cattle, draw it out on your corn-field when the corn is two or three inches high; cover it over your rows of corn, with the spigot right over your row of corn; put a small sieve under your spigot, so as to sprinkle it over the corn. One hogshead of this liquid manure, applied in this way, is worth two loads of barn-yard manure applied in the usual way.

H. R. SMELTZER.

From Ellsworth's Report for 1845.

OKRA AN EXCELLENT SUBSTITUTE FOR COFFEE.

Washington City, Jan. 15, 1845.

Dear Sir:—I take the liberty to call your attention to the cultivation of one of the most valuable of vegetables, destined, at no distant day, to expel from our market one of the most extensive articles of import, and now admitted free of duty. I mean *okra*, whose excellency in soup is universally known and acknowledged. Its ripe seeds, burned and used as coffee, cannot be distinguished therefrom; and many persons of the most fastidious taste have not been able to distinguish it from the best 'Java.' It is very easily grown; the seeds may be sown in May, in drills four feet asunder, an inch deep, and eight inches apart, and cultivated like corn or peas. It sends up a strong stalk, and yields a great abundance of seeds, and the 'coffee' made from it is very healthy. I think it a matter of great importance, especially to the Western States.

Very respectfully,
J. F. CALLAN.

NEW WORK ON SHEEP HUSBANDRY.

THE AMERICAN SHEPHERD: being a history of the Sheep, with their breeds, management and diseases, illustrated with portraits of different breeds, sheep-barns, sheds, &c., with an appendix, embracing upwards of twenty letters from eminent wool growers and sheep fatteners of different States, detailing their respective modes of management. By L. A. Morrel, New York.

We have received from the publishers, says the Editor of the New-York Farmer and Mechanic, the above work, the title of which very faithfully and fully describes its true character. It is precisely what American wool growers have long needed—an *American* treatise on the subject, and particularly adapted to the breeds and management of the Sheep of our own country. The author has, we think, very happily and opportunely met and elucidated the whole subject, and conferred obligations upon the wool growers of our land. The arrangement of the subjects is most excellent, and, although the author states that he has been obliged, in a great measure, to "carve out" his own way, and act the "lone pioneer" he has proved himself fully competent to the task, and given to the public a work, which to the Sheep growing community, will be invaluable. His object, he says, has been to bring before the public a *strong work*—authentic, if possible, in every particular, and worthy to be trusted and appealed to on any queston of importance. The value of the work may be inferred from the following recommendation of the N. Y. State Agricultural Society.

"Albany, April 16th, 1845.

At a meeting of the Executive Committee of the New-York State Agricultural Society, a work entitled "The American Shepherd," by L. A. Morrell, of Lake Ridge, Tompkins county, New-York, was presented, and the manuscript examined. The Committee have great pleasure in recommending the work to the attention of wool growers and others interested in the breeding and management of Sheep, as one containing a large amount of practical and scientific information on the most important branch of American agriculture.

Mr. Morrell has a high reputation as a skillful and successful farmer in everything appertaining to the breeding and improvement of Sheep. The work before us embodies the result of long experience, aided by a thorough research into the practice of the best breeders of Sheep and wool-growers in Great Britain and the Continent. The work contains letters from some of the most distinguished wool-growers and breeders in America, which add much to the value of the work. B. P. JOHNSON, *Pres.*

LUTHER TUCKER, *Rec. Sec.*"

The Editor of the American Farmer says, "As its title imports, it is by L. A. Morrell,—an extensive sheep breeder, of Tompkins county, N. Y.—a gentleman eminently qualified by his education, his pursuits, and his research, to make just such a book as is required by American flockmasters; and it is but meeting out even-handed justice to him to say, that, great as were the expectations of those who knew him, and had an opportunity of judging of his capabilities, he has more then realized every expectation formed of his talents, his experience, his industry, his powers of arrangement, and analysis. In a word, he has succeeded in making a book whose intrinsic merits entitle it to a place in every farmer's library—on every shepherd's shelf In his preface, the author says, that he has been a practical manager of sheep for many years—a vocation to which he is enthusiastically attached—he acknowledges an affection for the sheep paramount to that of any other domestic animal, and has studied its instincts and habits at all seasons and under all circumstances; that he now, and always have *shared with his laborers* in every department connected with their management. What, therefore, is offered on this subject, is the result almost solely of what his own eyes have seen, and hands handled—is nearly a transcript of his system of practice. These declarations were superfluous; for the book which Mr. Morrell has produced, bears on its every page the impress of a master hand—the evidence that he who gave it shape, and form, and pressure, was familiar with every detail, and intimate with all the mysteries involved in the duties of the shepherd; for none other than a practiced flockmaster could so completely have covered all the ground. There is not a point connected with the management of the sheep in health and in sickness—its

feeding and treatment, in summer and in winter, that he has not discussed with ability.

The author says that his object was to bring before the public "*a strong work*"—and most triumphantly has he done so. It is, indeed, a work which will be a standard one in sheep-husbandry long after he shall have passed from off this busy coil of life.

As we shall recur to this work again and again, we shall close our present notice by calling upon every agriculturist who desires to be possessed of the ablest work on the interesting subject of Sheep-management, to forthwith buy "*Morrell's American Shepherd.*"

From the New-York Farmer and Mechanic.

ON SILK GROWING IN NEW-YORK.

Lima, Livingston Co., N. Y., Nov. 29th, 1845.

A. C. VAN EPPS, ESQ:

Dear Sir:—Our crop of cocoons the past season, amounted to about 700 pounds; produced from less than four acres of land. They were raised at three crops. The first hatched the 8th of June, and spun their cocoons the 13th of July. The second crop spun the 18th of Aug. The third crop did not finish spinning until the 9th of Oct. This last crop was the best crop of the three. A fire was kept in the cocoonery most of the time during the feeding of the last crop, keeping the temperature at about 70° Fahrenheit. Our worms are fed from five to eight times a day, being careful to feed fresh and *tender* leaves to the young worms, and *mature* leaves to those that have passed their third and fourth moulting. Our worms are cleaned every day, from the morning they hatch to the day they commence spinning.

We use the multicaulis mulberry exclusively for feeding, and consider it as hardy a tree as any variety in this country. Our plantation consists of about 200,000 of these trees, planted on high and dry land. Nothing has been done to protect them during our severe winters, and I am not aware that we have lost, during the seven years that we have had them in cultivation a single tree.

We have reeled most of our cocoons, and have now on hand (and for sale) about 70 lbs. of excellent raw silk, and have 20 or 30 lbs. yet to reel.

It is expected, that the bounty, which is about to expire, will be renewed at the next session of our Legislature. Let the State grant a bounty for the term of ten years, to continue five years at 15 cents per lb. for cocoons, and 50 cents on reeled silk, and the next five years reduced to 10 cents on cocoons, and 30 cents on reeled silk, and it cannot fail to cause the permanent establishment of this business in our country. A large number of persons in this section of country, are awaiting the action of the Legislature upon this subject, before they shall engage in the business.

Yours, &c., JAMES W. CHAPPELL.

REPLY TO

JAMES W. CHAPPELL.

Dear Sir :—Yours of the 29th ultimo. came duly to hand. I learn with much gratification, of your contiued success in a branch of business, which I verily believe must eventually become one of the most important in our country. Your success is the legitimate result of a steady perseverance and determination to triumph, which few have manifested, I regret that so large a proportion of those who have embarked in this enterprise, have done so through merely speculative motives, with little real interest in the work, and no fixed determination to test it fairly and prosecute it to complete success. I have during an experience of many years as an instructor, held up to my students the *great motto ;* "What man *has* done, man *may* do," and so would I say as it respects the production of silk in the United States.

What France, Italy, or any other country *have* done, America *may* do. If Italy can produce silk to the value of $40,000,000 annually, it would be a libel upon American skill and ingenuity to say, we cannot do the same; and as far surpass, as our natural *facilities*, such as climate, soil, &c., surpass her's. This we can do, and with enough to follow your own example, we shall do in less than a quarter of a century. You have learned through the public prints that the subject of silk has occupied the attention of the Farmer's Club of the American Institute, at its last two sessions. These meetings are to me a source of decided interest—and I doubt not their beneficial influence will be extensively felt. It is a most fortunate thing for our country that there is in this metropolis an association like this, to collect and disseminate, all the important facts in relation to the agricultural and mechanical world. The subject of bounties on silk has been *duly* considered, and a Committee appointed for the purpose, reported at our last meeting the form of a memorial to the Legislature, asking a continuance of our present bounty. Energetic action on the part of those interested in this business, in securing a large number of signatures, will probably secure our object. I think a petition so evidently in accordance with the public interest, cannot be refused by our representatives. The subject of the mulberry was under consideration at our last meeting, as you will see by our reported proceedings. It was contended by some that a variety of the mulberry, more hardy than the morus multicaulis, must be adopted in our Northern States. The late extensive destruction of this tree, would seem to demand this. I have repeatedly recommended it, but I am not prepared to go to the expense, and exclude the multicaulis *altogether*. I should suggest the propriety of substituting for the *name* morus multicaulis, that of the CHINESE MULBERRY, which is its *real name*. I believe a lingering prejudice against this tree has much to do with the extensive denunciations we meet with. Your own abundant success, and that of others much farther North, prove the entire safety and practicability of using the foliage of the Chinese Mulberry in feeding our worms.

I contend that it is perfectly safe on high and dry land in any section of the United States; but it cannot endure one winter where the water is allowed to remain about the roots. My opinion on the subject of the mulberry has been repeatedly solicited by persons about to engage in the culture of silk; and I take this occasion to give expression to my views more fully than I did when the subject was before our Club. I repeat, this is undoubtedly the Chinese Mulberry; and the disciples of Confucius very properly attribute the prosperity and solidity of an empire hitherto without parallel, to the benefits derived from this tree. It was first introduced, as was the Brousa, another valuable variety of the mulberry, which ranks next to the Chinese in quantity of foliage it produces, and which is considered much hardier, and in this respect has the advantage, through the agency of the American Institute, in 1828, about ten years after its discovery by M. Perrollet, in the garden of a Chinese cultivator, at the city of Manilla, capital of the Phillipine Islands. This distinguished botanist was sent out by the government of France on a voyage of research to the Seas of Asia, in the year 1818, and returned in 1821—bringing with him, besides 158 other species of living plants, what he termed the Multicaulis—many stalked, or mulberry with many stems—and which he termed, by way of eminence, the Chinese Mulberry. It originated in the elevated regions of China, and always prefers, and flourishes most luxuriantly on similar locations. It was thence rapidly disseminated over all the plains near the sea-shore. From Canton it was introduced into Manilla, and all the Islands of the Asiatic Archipelago—so general was the belief in its superiority over all others then employed. The reception of this tree was alike flattering. In less than two years from the introduction of the first tree into the United States, millions of money were invested in it. Silk companies were formed in almost every city and village in the land, and many of them with immense capitals. Extensive cocooneries were erected with little or no adaptation to the end in view. Under this excitement, trees were multiplied with incredible rapidity, until the country was litterly inundated. The "mulberry fever," as it was termed, saw its day, and then came on a reaction. Thousands of flourishing nurseries wore torn up and burned, and in a few months nearly all were destroyed. So great had become the prejudice against the multicaulis, that it was next to impossible to convince a man who had been "bit," that it possessed any value, or that they were fit for anything but to be burned. Had the trees, left in the country by this excitement, been carefully husbanded, we should now have been ten years farther advanced. Instead of this, we are raising but little more silk now, than at the commencement of the Revolutionary war.

I am of the opinion that three-quarters of all the cocoons now raised are the product of the Chinese mulberry. Clark, in his work on the mulberry tree, claim for it the following advantages, as compared with the white, viz:

1st. It is full as hardy as the white.

2d. One pound of its leaves contains as much nutritive matter as a pound and a half of the white.

3d. The silk made from it is of a finer texture, and more lustrous.

4th. Its leaves are so large that a pound can be gathered at half the expense and trouble that a pound of white mulberry leaves require.

5th. It can be cultivated with infinitely greater despatch than any other kind.

I fully concur with him in the 4th and 5th, but think he may be mistaken in the other respects for which he claims superiority.

The principal advantage to which this tree is justly entitled, are the abundance of foliage it yields the first year, and the exceeding ease and cheapness with which it may be gathered. The difference in favor of this, in my view, when compared with any other I have seen, is as five to one; besides, it is so well adapted to the system of *green feeding* now being adopted. I am told that the brousa is as easily propagated from cuttings, yields as abundantly and as good a leaf, and besides will endure our winters, where the Chinese will not. If such be the case, then I think we may well give it our attention. The advocates of the Canton, claim the same advantages for that. I am disposed to attribute the varied results of the experiments that have been made, more to the place and manner of feeding, after all, than to the variety of the mulberry used. In no other way can I account for the *difference*, under similar circumstances. These differences must soon disappear under the modern improvements now entering into the culture of silk, and with the same forethought as other business, meet with a like success. We must not depend upon other nations for an article so extensively used amongst us, and which we are so well calculated to create ourselves.

I know many instances where arrangements are making to enter into this business both at the North and South, and believe we shall ere long proclaim to the world our independence of all nations, not only for the necessaries, but the luxuries of life.

I am, sir, very truly yours,

A. C. Van Epps.

New-York Filature, 19 Stanton-st', Dec. 10, 1845.

IMPORTANCE OF AGRICULTURE.

The following excellent remarks are from the pen of the Hon. Andrew Stevenson, one of the Vice-Presidents of the Virginia State Agricultural Society, extracted from a recent letter addressed by him to the Editor of the Farmer's Library, and do honor to his discernment and patriotism:—

Of the importance of Agriculture, in a physical, moral, or political point of view, I need say little to you. If, with the wisest, the

richest, and the most powerful nation, agricultural pursuits have ever been esteemed the most honorable, as well as the most useful employments of man, how much more should this be the case in a country like ours, where the Institutions, Government, and the People, depend so essentially upon their successful operation. Indeed, Providence seems to have decided for us the great question of preference, so long agitated by political economists. We are, and must continue, if we expect to remain free and prosperous, emphatically an *agricultural* people. And does not self-interest, as well as patriotism, combine to stimulate us to the improvement of our system of husbandry? What nation has ever existed celebrated for its advancement in civilization and the arts, in which the marked encouragement of agriculture has not been admitted? And yet, what country on earth so deeply interested in its success, has shewn less attention to it than our own? The spirit of improvement has not only been suffered to languish, but its essential and vital interests, have been shamefully neglected. Who can witness, my dear sir, without mortification, the stream of emigration from the whole of our Atlantic border to the Western portions of our Union? How many persons now we daily see selling their farms at low prices and relinquishing their birth-places and friends to settle in the rich vallies of the West, from a supposed inability to support themselves on their poor and exhausted lands. Is not this the result of gross mismanagement and a continued perseverance in the old and wretched system of cvltivation? How long are we to be doomed to this state of things? And are we never to profit from the experience of other nations? Whilst in Great Britain *nine-tenths* of the lands are leased to tenants who pay from thirty to sixty shillings sterling per acre, and find every thing for husbandry, they can even on these terms grow rich; yet we, (at least at the South,) without tithes or heavy taxation, and with numerous laborers, can barely make out to support ourselves from the products of our estates. I have seen it stated very recently on the authority of some eminent British statist, that to supply the United Kingdom of Great Britain with the article of wheat alone, would take the employment of the whole British Navy; and to bring all their agricultural products, as now enjoyed, would take the navy of the whole world. To ascertain this, it would only be necessary to take the average consumption of each inhabitant, and multiply the annual amount by the whole number of the population. England, as you know, has been called a *garden spot*, and such it may be justly regarded, when, with a territory not larger than that of New-York or Virginia, it can support a population nearly equal to that of the whole United States. It is alone by skill and industry that they resist the danger of excessive population pressing upon the means of subsistence, and thus enable them to supply an increasing population, not only with the same but a much better description of food from the same districts of country. Now, to what is all this attributed, but to *superior productiveness*, occasioned by *superior cultivation*, and the additional fact, that they

cultivate no more land *than they can manure and improve.* It was, I think, the late Lord Leicester [Mr. Coke,] who once said that the great and prevailing error in English agriculture was what he called over-ploughing, and having more land under tillage than the quantity of manure would justify. This, I think, is one of the great evils in our system of cultivation. If, on the contrary, we were to limit our tillage to our supply of manure, what an increase of old and exhausted fields should we witness? and yet I am convinced that our planters and farmers would be in much better and more prosperous circumstances. Our rule however, seems to be, that having so many laborers we must necessarily cultivate a great deal of land, whether it is rich or poor. This is one of the errors of our agriculturists, and it therefore becomes important to convince them that means exist by which their poor lands may be fertilized and rendered profitable at much less expense, and by which their landed property, as well as the comforts of life, might be greatly increased; and that these means are in their own power. [*Am. Farmer.*

From the Southern Planter.

COLMAN'S AGRICULTURAL TOUR.

We are indebted to the Boston publishers for the fourth part of this interesting work. Mr. Colman seems to take to heart some strictures that have been sent him by a "good natured friend," in which it is complained that his work is not enough matter-of-fact and practical in its character. It is very true, that any one who takes up these numbers with the expectation of finding a dry, professional detail of the mode of English husbandry, will be disappointed. Indeed, we are free to confess that we do not think Mr. Colman is a man of detail, and we have sometimes regretted that his work was not a little more dry and statistical; but his style is very easy, rather too sentimental, perhaps; his sketches are extremely graphic, the information conveyed is deeply interesting, and the whole work extremely readable for its agricultural, moral, political, religious and sentimental disquisitions.

We shall take the liberty of making for our readers a synopsis of, if not the most amusing, the most instructive matter of the present number.

Farm Accounts.

Speaking of the universal neglect of book-keeping amongst the agriculturists of America, Mr. Colman says:

"It is said,—and it is certainly much to his honor,—that a distinguished individual here, possessing immense estates, but who had become somewhat perplexed, not to say embarrassed, in his pecuniary affairs, and whose education had not been, in this matter, of a character to enable him to manage his affairs to advantage, employ-

ed an accurate accountant in his house for some time, for the sole purpose of learning from him the science of book-keeping by double entry. With a natural love of order, and a firm resolution, having acquired this knowledge, he was soon enabled to bring order out of confusion, and rescue himself from embarrassment, and its attendant and inevitable mortifications. Such an example as this is certainly worth recording.

"Many farmers, more systematic than others, keep not only an account of cost and expenditure, and the amount of sales and profits, in the form of a cash account, but likewise a regular account with every field and every crop, and I had almost said with every animal, taking, as every careful trader or merchant will do, a yearly account of stock at a fair valuation. Every thing is accounted for; not so much as a quart of milk is used in the family, but it is charged at the current price. I should be doing great injustice not to say that I know many examples of such carefulness in my own country.—Besides the great satisfaction springing from this exactness, the sense of security and integrity, which it brings with it, is invaluable."

Weight of Animals—to ascertain.

To ascertain the dead weight of a beef by measuring the living animal, Mr. Colman gives us the following rule:

"The girth of the ox (for it does not apply to cows as well as to oxen, as their shape is much less regular,) is to be taken directly behind the shoulder, and the length is to be measured from the front of the shoulder-bone to the end of the bone on the rump, where a line dropping down at right angles with the line on the back would just clear the thigh, or buttock. Then, according to a rule given me by Lord Spencer, 'reduce the feet into inches; multiply the girth by the length, and that product by the fraction .001944, which will give the weight in pounds.'"

But Mr. Colman adds that experienced men prefer rather to rely upon the judgment which long practice has secured them, in making purchases, than upon any rules of the kind, and that after handling, judging by the eye alone, a Smithfield dealer will come within twenty-four pounds of the weight of an ox and within two pounds of the weight of a sheep. Our own graziers, it is said, will stake their reputation upon not being out more than two per cent. in guessing the weight of a bullock. This is a very desirable accomplishment both for the buyer and seller of cattle upon the hoof. Mr. Colman thinks that the flavor of our meets is far superior to the English, notwithstanding their extraordinary fatness and the care that is taken in raising them. This superiority he attributes in the first place to their lack of Indian corn for fattening, and in the second, to the greater maturity which our animals are permitted to attain. The English sheep is killed at fifteen months, and the beef at two years of age.

English Laborers.

Mr. Colman, who is a very impartial observer, remarks, what we have often heard before, that the English does not accomplish near so much in the same space of time as the American laborer.

Mutton as a Diet.

The English mutton is particularly fat and abundant; he says:

"Mutton is always the prevailing meat, for this seems to be the favorite dish on English tables. It is a remarkable fact, that mutton is the prevalent dish at the public schools and colleges. At the blue coat school in London, for example, it is the sole meat for the eight hundred boys, four or five days out of seven. The same is the case, I am told, at Eton; and this not, as I supposed, from its comparative cheapness, but from experience, and the opinion of medical men, that it is the most wholesome diet, and least likely to interfere with intellectual application and health."

We are a good deal astonished to find Mr. Colman speaking of a "saddle of mutton" as a thing he never heard of before he saw it in England.

Early Potatoes.

After detailing some of the methods practised by the English gardeners to procure early potatoes, not very different from those in vogue amongst us, he mentions the following, of which we never heard before:

"Another mode of obtaining early potatoes, not *new* potatoes, which is, I am told, sometimes practised, is to plant potatoes only so early in the season, as that they shall be about half grown at the usual time of taking them up. These may be taken up in the autumn, and replaced in the earth; and early in the succeeding spring they may be sold as new potatoes."

Grape Vines—directions for Pruning.

Mr. Colman says he obtained from one of the best gardeners in England, the following directions for pruning grape vines:

"With regard to the best way to manage the vine, when fruiting, I invariably stop the shoot *one* eye above the bunch; and it is the practice of the best gardeners in England. I generally leave one shoot not stopped without fruit, and to fruit next season, and cut the shoots out that have borne fruit this year. On the short spur system, every shoot is stopped an eye above the bunch, except the top one, and then it must be managed like the rest; all the lateral shoots *must be stopped one eye* above another, until they cease growing, as, the more leaves you get, the fruit will swell larger."

Fruits and Vegetables in England.

England may with reason boast of the fineness of her fruits, especially as, in this matter, she has to contend with the adverse

influences of temperature and climate. The country abounds in green-houses, hot-houses, conservatories and forcing beds. All the appliances of art, and the highest measure of horticultural skill, are exerted to counteract the unfavorable circumstances under which their cultivation is carried on.

The hot-house or green-house productions of England, (such as pine-apples and grapes,) are not surpassed by any which I have ever tasted. The grapes are magnificent in size and delicious in taste. I cannot say that there are no native grapes, and none growing in the open air; but I do not recollect meeting with any. It seems to me to be the humidity of the climate of England, rather than its low temperature, which prevents the ripening of many fruits and plants, which are grown to perfection in an equally high latitude on the Western continent. It remains to be seen what will be the result of that remarkable system of drainage, which is here prosecuted in different parts of the country with great spirit, and which bids fair to become general, if not universal. Its salutary effects upon the human, as well as the brute animal, are said to be already, in some places, determined.

The smaller fruits—such as strawberries, raspberries, gooseberries, and currants—are cultivated with great success. Of a kind of strawberries, called the Alpine pine, and more properly the Elton pine, the size is most remarkable, ten of them, as I saw in the market of Dundee, where they are cultivated in perfection, actually weighing a pound avoirdupois. I saw others as large at the horticultural exhibitions, called by a different name; but those were forced in pots in green-houses.

Of plums there are several kinds; damsons are common; the Orleans plum, the large egg-plum, resembling what I think is called with us, Bolmar's Washington, are the most esteemed; but they are not abundant, and I cannot say that those which I have seen are equal to those seen in the best markets of the United States, and especially, of all other places, at Albany, in New-York, where this fruit is found in a degree of perfection and abundance which I have seen no where else. Cherries are plenty in the market, and in great pertection; the Tartarian, the Bigarreau, the large black-heart and mazzard, predominate.

Peaches, nectarines, and apricots, are seen occasionally at private tables, and in great perfection, though in very small quantities, at the great market, and at some of the splendid fruit shops in London. Peaches are grown in favorable situations on open walls, but in general under glass, and early in the season are forced by an artificial climate. They are brought to great perfection in appearance, and command, when first they appear in the market, two guineas (or about ten dollars and a half) per dozen.

The luxury in which the higher and wealthier classes in England live, is probably unequelled in any country, and is, perhaps, not surpassed in the history of Roman grandeur or oriential magnificence. They expend, whether willing or unwilling, with a profu-

sion which it is difficult for those of us brought up in the school of restricted and humble means to understand; and in respect to true liberality, there is probably the same diversity of disposition and character to be found as among those, who, instead of dispensing guineas, are obliged to keep their reckoning in pence and farthings. I do not forget that excessive wealth, as well as extreme penury, have each their peculiar moral dangers. But the liberal expenditures of the rich, even upon many articles of pure luxury, are a great public benefit. Certainly, no immoral indulgence is ever to be justified or excused, I do not say that it is the best appropriation of the money: that point I shall not now discuss: but certainly the person who gives his two guineas for his dozen of peaches, encourages industry, rewards horticultural skill, stimulates improvement, excites a wholesome competition, and would surely be doing much worse with them, if he kept them parsimoniously and uselessly hoarded in his coffers.

The apples in England are in general inferior, excepting for cooking purposes. The superiority of our Newton pippin is everywhere admitted and proclaimed. Of other of our fine apples—such as the golden russet, the Baldwin, the blue pearmain, and many others—I have seen none, though it is not to be confidently inferred, from that circumstance, that none are imported. Large quantities of apples are sent from the United States to England, and sold to advantage.

The English have not yet learned the value of apples as food for stock. Many of the farmers in the United States, after repeated trials, both for fatting swine, for neat stock, and even for milch cows, rate them in value in the proportion of three bushels of apples as equal to two of potatoes.

Of pears I have seen several good kinds, but none comparable to the Seckel or the Bartlett. This, however, may be mere matter of personal taste. Melons are grown only under glass, and by artificial heat.

The vegetables grown for table use are many of them in appearance of the finest kinds. The potatoes grown in England are in general of a superior quality, though I think them inferior to the potatoes grown in Nova Scotia. In Nova Scotia they have not only the advantage of a climate as cool as that of England, but likewise of a virgin soil, which circumstances seem particularly favorable both to the growth and the quality of the potato, and nothing of the kind which I have eaten, is equal to a fine Nova Scotia potato. In our old soils, surcharged with manure, the potatoes are always inferior in quality. In Ireland, deemed of all other countries the adopted home of the potato, I was seldom able to find one that was even eatable. This arose, however, not from the quality of the root, but from the mode of cooking—the Irish always desiring, to use their own expression, "to have a stone in the middle;" so that the aim of the cook was only to boil, or rather scald, the outside of the potato, and leave the inside as hard as when it went into the pot. The advantage of this,

as gravely stated to me, was, that they were *longer in digestion*, and therefore gave more support. This may be sound philosophy *in Ireland*, where the stomachs of the poor find equal difficulty in *getting*, as they do in *keeping* what they get. It would be inhuman to treat the extreme destitution of these poor wretches with any levity; but I found this mode of cooking prevailing also at the tables of the rich and noble; and after seeing such an abuse of one of the most useful and nutritious products of the earth, I was half inclined to advise him to try a few granite pebbles, and see whether they would not serve the digestive organs still longer. It was a curiosity to me in London, likewise, to see them selling in the market, by the quart, the small, not half-grown, not *quarter*-grown potatoes—not even so large as cherries, and many not larger than peas; and these were brought up as luxuries. I should quite as soon think of sitting down to a dish of boiled bullets, or duck-shot; and I should suppose with almost equal chance of nourishment.

Few beans are cultivated for the table, excepting the Windsor bean, which is a coarse vegetable, and a small bean used like our string beans, and called the French bean. Our Lima bean, and other rich pole beans, I have not met with.

Peas are abundant in market, are brought in early, and continued late, and are of several different kinds, the Charlton pea, (so called from the town where the earliest peas are grown,) being preferred as an early pea. In order to bring peas to early maturity, or rather to a state for sale, a ridge of land or high furrow is thrown up in a direction from east to west, and the peas are planted on the south side of this ridge at the bottom of the furrow. In this way, the young plants are protected from the cold winds on one side, and enjoy the warm rays of the sun reflected on the other. This is a simple and excellent arrangement, especially in a climate where, we may say, with some truth, that a handful of sunshine is worth much more than its weight in gold.

Carrots and turnips are of the finest quality, and always sold in bunches. The orange carrot seems to be preferred for the table; the Belgian white for stock. Onions are generally eaten small. They are planted early in the autumn, and gathered in July and August. Spinach, endive, cresses, lettuces, are always in the market, either forced or grown in the open ground. Blood beets I have scarcely seen, either in the markets or on table, unless pickled in vinegar. The fine egg-plant, so common in the New-York and Philadelphia market, does not appear to be known here. That most luscious vegetable, the sweet-potato, of course cannot be grown.

Of squashes, they can scarcely be said to have any. They have a very inferior kind, which they dignify with the name of vegetable marrow; but of our fine crook-neck and Canada squashes, or our autumnal marrow nothing is seen. Of our delicious green Indian corn, of course they have none. Cucumbers are always in the market.

There are four species of plants or edible vegetables, in which, it must be admitted, the English markets cannot be surpassed, at least in the size of their products. These are asparagus, rhubarb, cauliflowers, and cabbages. The asparagus and rhubarb are gigantic, the rhubarb more especially, which is often brought to market three and four feet in length, and of the size of a woman's arm—some women, of course, excepted. The early asparagus is forced under glass; the later is forced in the open ground by all the appliances of manure. The quantity of rhubarb consumed is enormous, for it comes not in baskets, but piled up in four-horse wagons in bulk. The asparagus shows the want of sun, and appears as if grown in a cellar, the mere head of the early kinds being the only part eatable.

I have one remark to make in regard to English vegetables and fruits, that will not, I hope, be deemed ill-humored—which is, that, though cultivated with extraordinary skill, with the exceptions I have above named, they are tasteless, and without that fine relish which one would like to find. I think it is Voltaire who says "that the only ripe fruit to be found in England is a baked apple." I cannot accede to a censure so sweeping, but it is plain that their fruits and vegetables want ripeness and flavor. This may arise partly from a deficiency of heat from the sun, and partly free from the excessive forcing of their vegetables, in the vicinity of large markets, by unlimited quantities of manure. I know how difficult it must be to make an Englishman believe this statement; for, under the national peculiarity of a large endowment of self-esteem, which their Anglo-Saxon descendants over the water seem to have inherited, a genuine Englishman thinks that nothing out of his own country can possibly be so good as what is to be found in it. Now, in *intellectual* fruits, and the products of art and science, I will not dispute their preeminence—only hoping that, while they are reposing upon their laurels, a young and ambitious rival, in a fair and generous competition, may be up with them as soon as possible, and distance them, if he can. But climates and sunshine are not under human control; and the fact which I have stated, is in my mind established, and not the result of mere prejudice, of which, on any subject, if I were conscious of it, I should be ashamed."

IMPORTANT TO GRAIN GROWERS.

We are informed by an intelligent planter, Major John Tomkins, that the following cheap and simple process will effectually protect corn or other grain from the ravages of weevils or other insects, for any length of time after it has been gathered.

Strip the leaves and berries from the China tree or Pride of India, as it is sometimes called, and scatter them in alternate layers with the corn or other grain as it is housed. If you have not the China tree, get the berries and plant them; they will grow as certainly and almost as rapidly as corn. *Albany, (Geo.) Patriot.*

For the Southern Agriculturist.

TO ASCERTAIN THE POWER OF MILL SITES.

THE following Tables have been drawn out with considerable care, and may prove useful to those who wish to ascertain the power of Mill sites, which they may desire to use, sell, or purchase.—We will not vouch for the perfect accuracy of all the calculations, but believe them to be sufficiently so, for all useful purposes. Those who wish to enter more minutely into the subject, we refer to article Hydrodynamics, vol. 12th, Encyclopedia Britanica; to Gregory's Mechanics, Bronton's Compendium of Mechanics, 7th edition, and to James Montgomery's Manufactures of Great-Britain and America compared.

To ascertain the power of a Mill site, allowance of 12 inches below the wheel must be made, it being necessary to secure a free passage of water from it. There must also be a sufficient head above the wheel to give the water the required velocity to fill the buckets when in rapid motion. A wheel of 12 feet diameter (if it be an over-shot,) should have at least two feet head; one of 18 feet diameter, 3 feet head; 24 feet diameter, 4 feet head; 30 feet diameter, 5 feet head.

Ascertain from the table, the number of cubic feet which passes per minute, then the perpendicular fall, from which deduct the 12 inches necessary below, and also the required head above the wheel; multiply the cubic feet of water by 62½ lbs., then multiply by the diameter of an over-shot wheel, deducting from the product one-third for friction, and you have the effective working power in pounds, then divide by 33,000 lbs., (Watt's estimate of a horse power,) and you have the power of the Mill site reduced to the number of horse power.

One horse power is estimated to be necessary to drive 75 throstle spindles with the required carding and weaving machinery, when employed in making coarse fabrics.

Example.—Suppose a stream, in the lowest stage of water, to be sufficient to fill a notch in a wasteboard, or tumbling dam, of 12 inches wide, and 12 deep, and to have a perpendicular fall of 15 feet. According to table annexed, there will pass in one minute 224.34 cubic feet, $224.34 \times 62\frac{1}{2} = 14021.25$ lbs. $\times$ 12 feet, (the diameter of the wheel,) and you have 168256.02 lbs. of power expended per minute;

deduct from this sum $\frac{1}{3}$ for friction, the remainder will be the difference between the power expended, and effect produced.—168256.02 lbs. $-\frac{1}{3}=112170.68$ lbs. effect produced. $\div 33000=3.39$ horse power for each 12 inches of dam, the water being 12 inches deep. If the same be applied to a back action wheel, then measure from the point at which the water strikes the wheel to the bottom of the rim, and multiply the same as with the diameter of an over-shot.

To find the power of a Mill site by measuring a gate which discharges the water at a given depth below the surface.

Ascertain the number of square inches and the depth from the centre of the orifice to the surface, then multiply the velocity by the area of the opening, and you have the number of cubic feet discharged per second; multiply the product by 60, to ascertain the number of cubic feet discharged per minute. You then follow the preceding rule of multiplying by $62\frac{1}{2}$ lbs., and this product by the diameter, or height of the point at which the water strikes the wheel, then deduct $\frac{1}{3}$ and divide by 33000 lbs.

Conditions.—Take a saw mill, the wheel of which runs under 9 feet head, gate 12 feet wide, 2 inches open; suppose the stream at the lowest stage of water to be sufficient to keep this wheel in constant motion 12 hours in 24. The opening being precisely 2 square feet, and the velocity 24.06 per second, the stream will be equal to 2887.20 cubic feet per minute. Then to ascertain the full capacity of the Mill site for manufacturing purposes, ascertain how much may be added to the height of the dam. To bring it within the reach of the generality of saw mills, we will suppose that the dam be raised $2\frac{1}{2}$ feet higher, the allowance of 12 inches below the wheel is already made, it being necessary to the running of a saw mill.—Allow 18 inches head, and you have 10 feet effective fall, which may be applied to a 10 foot over-shot, or 12 foot back action wheel.

Example —Velocity of water 9 feet head, 24.06×2 feet orifice$=$ 48.12 cubic feet per second, $48.12\times 60=2887.20$ cubic feet per minute, $2887.20\times 62\frac{1}{2}=180450.00$ lbs. $\times$ 10 feet effective fall 1804500.00 lbs. of power expended per minute, from which deduct $\frac{1}{3}$, the difference between power expended and effect produced, 1804500·00$-$ $\frac{1}{3}=1203000.00$ lbs., effect produced $\div 33000$ lbs.$=$ 36 44-100 horse power. Competent to drive 2732 spindles, and all the machinery necessary to make coarse cloths.

The following Table will afford an easy method of computing the quantity of water passing down a stream, and its power when applied to machinery. If no dam exists, erect a tempory one which we term a wasteboard. The velocity of water before it reaches the board, or dam, should be always added.

TABLE 1.

Depth from dam or wasteboard to upper surface of water passing over it, in inches.	Cubic feet of water discharged per minute, by one inch of the dam, supposing the velocity of the pond not perceptible.	Cubic feet of water discharged in a minute over 12 inches of dam, one 20th gain added, over one inch for absence of friction.	Gallons of water passing over 12 inches of dam in a minute, 282 cubic inches to a gallon.	The horse power and fractions of same, which 12 inches will produce on a 12 foot over-shot wheel.	Throstle spindles which the same will turn with carding and weaving heavy goods.
1	0.40	5.13	32.	.077	6.
2	1.14	15.25	93.	.230	20.
3	2.09	28 04	171.	.420	36.
4	3.22	43 19	264	.680	58
5	4 50	60.34	369.	.910	68.
6	5 92	79 31	485.	1.200	90.
7	7 46	99.95	612.	1.510	113
8	9.12	122.11	747.	1.850	138.
9	10.88	145.70	892	2.180	163.
10	12 74	170.54	1047.	2 580	193.
11	14.70	197.46	1206.	2 990	224.
12	16.75	224.34	1380.	3.390	255.
13	18.89	252 70	1539	3.850	289.
14	21.11	282 70	1731.	4 280	321.
15	23.41	313.52	1920.	4 750	356.
16	25.80	345.40	2117.	5 230	392
17	28.25	370 30	2317.	5.730	430.
18	30.70	412.14	2524.	6.240	468.

TABLE 2.

Velocity of spouting water under different heads.

The height of head above opening in feet.	Velocity of the water per second in feet and hundredths, friction not included.	Velocity of the water per second in feet and hundredths, friction included, applicable to small apertures.
1	8.02	7·62
2	11 34	10.77
3	13.89	13.20
4	16 04	15.24
5	17 94	17.04
6	19 65	18 67
7	21.22	20.15
8	22 69	21.56
9	24.06	22 86
10	25 37	24.10
11	26.60	25.27
12	27.79	26.40
13	28.92	27.40
14	30 01	28.51
15	31.07	29.52
16	32.09	30.48
17	33.07	31.42
18	34.03	32.33

WESTERN MANUFACTURES.

The Nashville Orthopolitan states, that in Lawrence county, Tennessee, in five factories of which the names are given, capital to the amount of $13,000 is invested; 86 hands are employed; 665 bales of cotton are consumed, and 485,000 dozen of thread are spun. Two other other spinning factories are in process of erection. In the same county there are five iron works, each of which produces 100,000 pounds of iron. The gross amount of iron manufactured in this county is about 900,000 lbs., valued at $36,000. The value of cotton yarns is estimated at $40,000. [*N. Y. Far. & Mech.*

For the Southern Agriculturist.

GUANO AS A MANURE FOR SEA-ISLAND COTTON.

Edisto Island, December 15th, 1845.

Mr. Editor,—The request contained in the last Number of your Journal, reminds me of a promise I made you, some time since, to communicate the results of the experiment which I have made in Guano as a manure for cotton.

On five acres of light sandy land, I sowed at the rate of two hundred weight to the acre. In consequence of the drought which prevailed at that time, I did not apply the Guano until 7th April, when I was compelled by the advanced period of the season to do so, without a rain, for which I had been so long waiting. The application of it was made upon the sides of the list, so as to prevent its contact with the seed, the germination of which it is said to destroy. The land was then immediately bedded and planted. The seed remained in the earth until 12th of May, when a general rain brought up those crops, which had not been planted in time for the earlier rains of March. As there was not sufficient moisture in the bed to dissolve the Guano, it of course, produced not the slightest effect upon the plants, and these acres being the poorest upon my tract, having been selected with a view to this experiment, they continued in a sickly and unthriving condition until the *great August rain*, when the beds becoming thoroughly wet, the plants commenced a rapid and luxuriant growth, and ultimately attained an average height of five feet, when under the influence of other manures, they have scarce ever exceeded three feet; the product was as great as I could have expected under these unfavorable circumstances, being over a hundred weight of clean cotton to the acre, and fruit enough remaining to give seventy or a hundred pounds more, had the plants been up in time sufficient to allow them to mature their fruit. Contiguous to these acres, were others manured with the moveable cow-pen and marsh-mud, (the most approved way of preparing our grounds for a sure crop,) and upon such of these as were backward from the same cause, the yield was not as good as those manured with the Guano.

There are certain portions of my field which are invariably infested with what is known among planters, as the *root bug*, a small

red insect, which preys upon the roots of the cotton plant, and either destroys it altogether, or retards its growth in such a manner as to render it fruitless. Having seen it reported that this manure would expel all insects from plants to which it is applied, I embraced the opportuuity afforded me by a shower of rain, which fell about the 1st June, and applied, while it was raining, a teaspoonful around the stalks of these plants, which to appearance, were almost dead; they revived, and ultimately produced as much as any other portion of my crop. The trial I made of this manure on my root potato crop, was highly successful. As I perceive however, that the opinion has been expressed, that the disease in the potato crop of Europe, has been owing to the introduction of Guano, and although contradicted upon high authority, it becomes us to be careful of any experiment in which there is a possibility of such fearful consequences resulting.

I am happy to have it in my power, to report still more favorably of the experiment made by my neighbour, Mr. William Seabrook, who, along with me, directed this importation. He availed himself of an early rain in March for applying this manure, and in a manner calculated to test its utility beyond all doubt. Selecting a part of his field, a task (105 feet) in width, and extending the entire length of it, (a mile,) he applied on different sections of it, at the rate of two, three, and four hundred weight to the acre. The first quantity we think most safe, as there was a great tendency to *flagginess* where it was exceeded. The lands adjoining this experiment strip were manured with the moveable cow-pen and mud, and compost manure, and as far as the eye could distinguish, there was a difference in the growth of more than a foot, and in color a deeper and more luxuriant green, and in production we estimated it fifty pounds more to the acre, in favor of the Guano. We have both found it to be almost a sovereign remedy for the *rust* in cotton, a disease that is exciting the concern of planters throughout the entire cotton-growing region of this and other States. Where there is a predisposition in land to flagginess, or what is more commonly called "blue," this manure should be used with great caution. The cost of the Peruvian Guano in New-York, is fifty dollars per ton. I am so satisfied of its adaptedness to the cotton plant, that I have ordered three tons to be sent on to me, and several of our planters who have witnessed its good effects, have done so to a larger extent.

You also desired my opinion concerning the Bommer method of making manure. Having already written you a longer letter than I intended, I will for the present only add, that the ten dollars which I paid you for the right of using that method, I have no reasons for regretting having expended. Very respectfully yours,

J. JENKINS MIKELL.

THE VALUE OF CORN COBS AS A FOOD FOR CATTLE.

When it is recollected how many hundreds and thousands of bushels of corn cobs are annually thrown away, or wastefully used as fuel, it becomes a matter of deep interest to every corn grower to know the degree of value to which this offal of the farm may be entitled to be considered as food for cattle. Does corn-cobs possess properties of nutrition? If so, are those properties sufficiently concentrated to render them safe and efficient food? These questions are important, and particularly so in those years when there may be a scarcity of long feed, as hay, tops and fodder, and fortunately for the solution of these questions, a most accurate test—a nicely conducted experiment—was made many years since by P. Miner, Esq., of Ridgway, Virginia, and communicated at the time to the Agricultural Society of Albermarle county of that State. His experiment was conducted by distillation, probably the surest way of testing the degree of nutriment contained in the substance submitted to the test of experiment, and the result of this experiment is entitled to the more consideration, as it was undertaken at the request of a member of the Society, with the express object of determining the relative proportions of nutritive matter in the *grain* and *cobs* of the Indian corn.

Mr. Miner says the experiment was carried on under the eye of an experienced and intelligent distiller, and was as follows:

Ten bushels of the corn and cob ground together were taken, which weighed 367 lbs., and ten bushels of pure corn meal were taken, which weighed 400 lbs. They were both brewed or mashed on the same day and distilled separately, with great care and accuracy. The product of the pure corn was eithteen gallons, and the product of the mixture, or corn and cob, was thirteen gallons of spirit, each of the same degree of proof. Now it is generally agreed that the cob constitutes about one-half of the bulk of corn—in other words, we give two measures in the *ears* for one shelled, and the cobs are either used as fuel, or thrown away as of no value. If this were true, the product of the mixture then should have been only nine gallons, which is the half of what the pure corn produced. But thirteen gallons were obtained, four of which must have been, of course, extracted from the cobs; or if we estimate its nutritive power by the quantity of spirit, it is clear, that whenever we shell ten bushels of corn, and throw away the cobs, we throw away a

portion of food equal to the difference between nine and thirteen, or nearly one half.

Mr. Miner further remarks:

As it relates to the respective weight of each, the difference in favor of the mixture is still greater, the pure meal weighs more than *three* pounds heavier in the bushel, and I am inclined to think that the product of the mixture would have been greater if the experiment had been made earlier, it was made in March. The distiller mentioned an important fact that occurred in the process. He found that the fermentation of the mixture took place much sooner, and was perfected a day or two earlier than the other: that it mashed much easier and better than any thing he had tried before, and which he accounted for by supposing, that the particles of the cob being lighter and coarser than those of the grain, when mixed together, prevented too close and heavy a deposition of the mass at the bottom of his brewing tub.

This experiment of Mr. Miner's, accurately and nicely as it was conducted, does not settle the question as to how much nutriment the cobs contain—it only settles that, of how much spirit they will will make—and what is their relative value for the production of spirit when compared with the *grain*. It proves that while 10 bushels of *meal* made from the *grain* made 18 gallons of spirit, the same quantity of meal made from *cobs* and *grain*, made 13 gallons, and of course, that the 5 bushels of cobs yielded 4 gallons of spirit. Besides the principle of *alcohol* to be found in all *grain*, and most vegetables, there are other substances, or principles in all, possessing nutritive properties—among these, may be enumerated the saccharine and oleoginous properties, of infinite value, not only in the sustenance of the animal system, by the elaboration of carbon, but in the production of fat, as these are known to be active agents in these particulars. And besides these, there are other principles which contribute to the formation of flesh, muscle and bones.—Without reference to the chemical analysis of the corn-*cob*, of which we are not aware that one has been made, we take it for granted, that as it contains four-ninths as much spirit as does the *grain*, that its elements bear a proportionate relation. But we are not left to conjecture as to its value; because the experience of every one who may have lived in the neighborhood of a distillery, will have taught him that the residium, after the spirit is extracted from the grain, familiarly called *distiller's slop*, is used advantageously in the *fattening* of swine, and that when fed to milch cows, though its fattening properties are not so apparent with them, it is eminently conducive to the secretion of milk, and that when fed in connection with fodder or hay, never fails to keep them in good heart and condition. But to return to the *corn-cobs*. We have already shown that so far as *spirit* is concerned, that they yield nearly half as much as the grain itself, and we think the inference a fair one, that if they were reduced to *meal*, submitted to some cooking process, and incorporated with chopped fodder of some kind, that they would be found for

cattle, to be fully equal to half their quantity of corn, whether regard be had to their general health, the formation of flesh, muscle, bone and fat.

We conclude, therefore, by the expression of the opinion, that every corn-grower should save his corn-cobs for his cattle, and that to render them available, he ought to provide himself with the means of reducing them to cob-meal, if not that of cooking them also.

[*Am. Farmer.*

PLANTS DELETERIOUS IN CONFINED PLACES.

It is not sufficiently known by the admirers of flowers, that the agreeable perfume they emit, when in full bloom, is decidedly deleterious when diffused through close apartments, producing headache, giddiness, and other affections of the brain. But it is only in confined rooms that such effects are produced. In the garden, when mingled with a wholesome and exhilerating atmosphere, amidst objects that awaken the most delightful sensations of our nature, those sweets are a part of our gratifications, and health is promoted in consequence of our enjoyment. Who has not felt the excitement of spring? of nature in that delightful season, rising from the lethargy into beauty and vivacity, and spreading the sweets of the primrose and the violet for our gratification? Amidst the beauties of the flower garden, these pleasures are condensed and refined; and the fragrance there hanging on the wings of the breeze, is not only pleasant but wholesome. Whatever increases our gratifications, so peculiarly unmixed with the bad passions of human nature, surely tend to the improvement of mankind, and to excitement of grateful feelings towards that beneficent Creator, who has so bountifully supplied us with these luxuries. [*N. Y. Sun.*

MACHINE FOR ROLLING TOBACCO.

Mr. Marston, of Danville, Virginia, has invented a machine for rolling tobacco, which it is said, promises to work a complete revolution in the manufacture of that article. With *three boys* to attend it, it will do the work of *thirteen men*, at a saving of $1,320 per annum. The Reporter, in noticing it says:—

One machine will turn out 1,500 pound lumps per day, or 450,000 per annum, of 300 working days.

Cost of hire, feeding and clothing three boys to tend the machine, at $80 each, per annum, - - - - -	$240
To do the same work in the ordinary way would require thirteen men experienced in the business, at $120 each,	1,560
Amount saved by machine, - - -	$1,320

GARLIC A CURE FOR EPIDEMIC IN SWINE.

It was stated at a late meeing of a farming society, that garlic was an effectual cure for the epidemic among pigs; that a few cloves (two or three,) bruised and boiled in a little milk, and given when the disease had set in, would immediately counteract it. The following was brought forward among many others, as a proof of this: A man who bred pigs extensively, was prevailed upon by a neighboring farmer, to give a few cloves of garlic, in the manner I have stated, to six pigs which had been attacked with the disease. This was done in the evening, and on the following morning they were perfectly recovered; whilst two others that had been attacked by the disease at the same time, in the same piggery, but to which the garlic had not been administered, were found dead. If garlic be such a remedy as the foregoing, which many other cases prove it to be, I think every person should avail himself of this, by planting in his garden a few cloves of this simple cure for a malignant distemper. *New Far. Jour.*

ANTIDOTES OF POISONS.

When the poison has been swallowed, ascertain from the patient what the nature of the poison is---if mineral, that is, either corrosive sublimate, or arsenic, give a teaspoonful of pearl-ash, or a glass of soap-suds, afterwards give a teaspoonful of antimonial wine, and plenty of warm water. If vegetable, of oil of vitriol, aqua-fortis, or oxalic acid, give pearl ash, or chalk, or magnesia, or soap-suds, in plenty of warm water, with a desert spoonful of antimonial wine, or a scruple of simple powder of ippecacuanha. If laudanum, give a tea-spoonful of domestic mustard, and keep the patient walking. If carbonic acid, or fumes of charcoal—open air, keep the body cool; medical aid is required. [*Am. Farmer.*

TO CURE A STIFLED HORSE.

Take one gallon of urine, and put therein a small handful of junk tobacco, boil down to one quart; then add two ounces of the oil of spike, one ounce of the oil of amber, two spoonsful of spirits of turpentine, and two spoonsful of honey. Put it into a jug, and cork it tight for use.

Process of application.—Rub the stifle bone hard with the mixture fifteen twenty minutes; then dry it in thoroughly with a red hot fire shovel, then ride the horse forth and back one hundred rods. Repeat the above two or three times, and the cure will be effected.

[*Am. Agriculturist.*

SALTING FOOD FOR STOCK.

Mr. Camak:—I lately saw a publication, (certain evidence of thought and good feeling in the writer,) recommending as saving in feeding, cutting up straw, hay, shucks, &c., in this time of scarcity, which is certainly an economical mode of feeding where the quantity is so limited.

Permit me to add my experience in saving and making coarse food more nutritious, to the valuable mode recommended:

If hay, straw, shucks, or tops, are cut for feeding, which can be done very easy and quick on the late improved straw cutters, it should be done in quantities that will fill, say two large hogsheads. Sprinkle the cut straw, we will now call it, with a small quantity of salt-water, and then pack it into the hogsheads by pounding it with a wooden pestle. In this state the salt will diffuse itself through the cut straw, so delicately, that it will be sweetened with the salt, making it palatable and more nutritious, and much more healthy to the animal. The hogsheads should be kept closely covered, and when the cut straw, hay or shucks, is taken out, it will have the flavor of new made hay or straw, delicious to the smell.

In using two hogsheads, one should always be kept full, to undergo the process of diffusion, which takes some little time. Care should be taken that not too much salt is applied, or the animals will not eat it. A very small quantity only is required.

Those who have observed even cut oats fed, have seen that the joints of the straw are left by the animals, being too hard; yet this part is the most nutritious part of the straw. Sprinkle the cut oats with salt and water and these joints are softened and sweetened, and will be eaten up with avidity.

Horses or mules fed in this way, will soon show the value of the sprinkling, by an improved coat of hair; and as salt is the best vermifuge, they will be protected from destruction by the ravages of the bots.

The planter should, in every operation as much as possible, adopt system. This would systemise feeding, essential to health, and consequently strength, even in the human family.

Respectfully, &c., R.

Greenville, S. C., Oct. 24, 1845. [*Southern Cultivator.*

BUTTER MAKING.

Every dairy woman should know, and perhaps does know, that her milk, set for butter making, should be closely watched and skimmed before it begins to sour, and that the latter skimmed cream should lay on the top of the former, and her body of cream should never be stirred till churning time. A layer of sweet cream gently laid upon that before skimmed, twice in a day, keeps it from the hot air, and preserves it from becoming very acid, in the warmest weather, if churning be done once in four days.

Our dairies fare hard of late, since the daughters forsook them. I use my churn for a cream-pot to save work. Perhaps it is well known that extreme heat melts cream and renders it unfit for butter, and if your readers will have patience I will relate a trifling part of recent experience. Last year the wind deprived us of the shade of a beautiful tree, which protected our dairy-room from the sun. And one day when the thermometer stood at ninety-seven, not aware of the extreme heat, I commenced skimming into my churn as usual. The three following days the weather was cooler. When I churned, the three day's cream which lay on the top made fine butter, which, (if I rightly managed) I will warrant to be pure at the end of dog days.

The one day's cream at the bottom I could not separate from the buttermilk, because it had been melted. If I had stirred the whole together as I skimmed it, I should have lost all my butter; whereas, I lost only one fourth. If asked why it did not so mingle by churning as to spoil the whole, I answer, I cannot tell. All I can say is that three fourths of my butter, made very soon, and come from the churn nice, while the remainder was good for nothing.

[*Boston Cultivator.*

TO THE EDITOR.

I had lately an opportunity of seeing with regret, the reduction in income, which is generally experienced by our planters, and the necessity under which they labored, either of reducing their *proper expenses*, or selling portion after portion of their property. I heard with increasing regret, that some mistaking their *proper expenses*, had restricted the education of their children, some their usual charities, and contributions to religion. Continuing the conversation, I heard these very gentlemen speaking of their Overseers, and found that it was a usage, a fashion among them all, to employ an Overseer for each little estate. I heard with astonishment, that these fathers of families, instead of enforcing by precept and example, their proper duties of industry, morality and religion, were stinting their families and laborers, while they lay abed all the morning, and spend but little of their time controlling, inspecting, and directing the work and care of their laborers. Let the number of these laborers be great or small, an Overseer is employed and must be paid, whilst the Master from pride, indolence, habit, or fashion, gives up their management to an hireling, lies in bed, resorts when awake, to public meetings, and exclaims against hard times. I do not specify the districts in which these habits exists, let every reader inquire for himself, and every planter ask himself, whether in the whole or in part, he is not the person aimed at? Whether he may not improve his situation, and that of his family, by more care and industry.

Q IN THE CORNER.

LIST OF PAYMENTS.

Dr. J. R. Cheves, St. Matthews,	1845	Mr. Carnot Bellinger, Ala.	1845, '46.
Mr. Caleb Clark, Winnsboro,	1845	Mr. J. H. Couper, Darien,	1845, '46.
Mr E. M Taliaferro, Poolsville, Geo	1845	Mr. Ed. Turner, Natchez,	1846
Col. S. Mobley Crosbyville,	1845	Mr. Solomon Legare,	1846
Mr. W. C. M'Michael, Orangeburg,	1845	Mr B. Haile, Camden,	1846
Hon. Langdon Cheves, Savannah,	1845	Mr. Andrew Milne,	1846
Mr. Wm. Elliott. Beaufort,	1844, '45.	Dr. H. Sheridan, Red Bank,	1846
Dr. Chs Glover, St. Mathews,	1844, '45	Mr. Wm. H. Mungin, Savannah,	1846
Mr. John C. Whaley,	1845		

TO OUR READERS AND PATRONS.

We present to our patrons and the public, the 1st Number of the sixth volume of our second series of the *Southern Agriculturist*. This Journal was originally published by JOHN D. LEGARE, ESQ., in 1828, and has always been *printed* by the present proprietor and publisher. The work has been continued by him for several years past, for the purpose of keeping alive that zeal for agricultural improvements, which was originally intended by its publication; for prior to 1828, there was nothing of the kind published south of Baltimore, where the American Farmer was then edited by the venerable Mr. Skinner; as the exertions of the then Agricultural Society of South Carolina to promote the interests and circulate information among the planters of this section of the Union was the chief cause of its first publication—so we had thought that it would still have met the fostering protection of that and other Societies which have since sprung into existence, perhaps too, under the very excitement it caused among the agricultural communites; yet it so happens that it now languishes for that support which is necessary to its existence as a means of public utility. It seems, like all other things, to be passing away as *the fashion of a day*.

The pride of the publisher has been, not to relinquish the ground, however poorly he has fulfilled the dnties of an Editor—but the work would not even bear the expense of paying a qualified person to fill that station—and lest it should become *a reproach to the State*, that it had not an Agricultural Journal within it, he has continued it —and would now relinquish it to any person qualified, for the benefit of its agricultural friends. No one can say that it ought to cease to be, while on every side, such publications are liberally supported, and their circulation extending even among *our* planters and farmers. We therefore again present it to the agricultural community, in hopes they will not let it perish forever, for the want of their patronage.

And we again appeal to those interested in the prosperity of the agricultural interests of the South, to aid us with all the original matter they can. The terms will be found on the annexed page.

Copies of this Number will be sent to several influential gentlemen, whose patronage we desire to obtain.

TO CORRESPONDENTS.

We received the article on *water power for Mill Sites*, too late to give it on our first page, we publish it however, with pleasure, and hope the author will continue to favor us with a succession of such like articles—now that the State has determined to extend its fostering hand to manufactures within our borders.

The article on experiments in Guano, was also too late, but as its subject is one of great interest at present, we insert it.

The article on Fruits we have delayed for our next, when it shall appear.

We hoped to have given some part of the Proceedings of the State Agricultural Society at Columbia, in the beginning of Decemqer, together with some part of the Hon. J. R. Poinsett's Address—but have been prevented until the copy reaches us.

The club of gentlemen, in Mississippi, who forwarded their names through our friend Dr. J. G. M'Gee, will receive their Numbers by regular course of mail.

TO OUR DISTANT AND NON-PAYING SUBSCRIBERS.

☞ Persons at a distance indebted for the *Southern Agriculturist*, will please forward their money by mail, in the best bills they can obtain.